

DEPARTEMENT VAN HANDEL EN NYWERHEID
DEPARTMENT OF TRADE AND INDUSTRY

REPUBLIC VAN SUID-AFRIKA



REPUBLIC OF SOUTH AFRICA

PATENTBRIEF

(WET OP PATENTE, 1978)

LETTERS PATENT

(PATENTS ACT, 1978)

No. 97/5569

NADEMAAL
WHEREAS

ETIENNE DOUW VISSER

(Hieronder "die Patenthouer" genoem)
(Hereinafter called "the Patentee")

aansoek by my gedoen het om die verlening van 'n patent ten opsigte van 'n uitvinding wat beskryf is en waarop aanspraak
has applied to me for the grant of a patent in respect of an invention described and claimed in the complete specification

gemaak word in die volledige spesifikasie wat by die Patentkantoor onder bovermelde nommer ingedien is en waarvan 'n
deposited at the Patent Office under the above-mentioned number, a copy of which is annexed, together with the relevant

afskrif aangeheg is tesame met die betrokke Vorm P. 2;
Form P. 2;

SO IS DIT dat hierdie Patentbrief aan die Patenthouer 'n patent verleen wat die uitwerking het dat, behoudens die
NOW THEREFORE these letters Patent are to grant to the Patentee a patent, the effect of which shall be to grant to the

bepalings van die Wet, aan die Patenthouer vir die duur van die patent in die Republiek die reg verleen word om ander
Patentee in the Republic, subject to the provisions of the Act, for the duration of the patent, the right to exclude other persons

persone uit te sluit van die vervaardiging, aanwending, uitoefening of van die handsetting van die uitvinding, sodat hy al die
from making, using, exercising or disposing of the invention, so that he shall have and enjoy the whole profit and advantage

wins en voordeel wat uit die uitvinding voortspruit, verkry en geniet.
profits and advantage accruing by reason of the invention.

TER BETUIGING WAARVAN die seël van die Patentkantoor hierop te Pretoria aangebring is met ingang van die
IN TESTIMONY WHEREOF the seal of the Patent Office has been affixed at Pretoria with effect from the

25 dag van MARCH eenduisend negehonderd NINETY EIGHT
day of nineteen hundred and

[Handwritten Signature]
Registrateur van Patente • Registrar of Patents

(Blaai om
See overleaf)

REPUBLIC OF SOUTH AFRICA
PATENTS ACT, 1978

COMPLETE SPECIFICATION
[Section 30(1) - Regulation 28]

Official application No.

21 01

97/55551

Lodging date

22

1997 05-24

International classification

51

A45F E04H

Full name(s) of applicant(s)

71

ETIENNE DOUW VISSER

Full name(s) of inventor(s)

72

ETIENNE DOUW VISSER

Title of invention

54

INFLATABLE TENT FRAME

This invention relates to an inflatable frame suitable for supporting a cover material to form a tent or canopy.

Tents and canopies could be cumbersome to erect, requiring a frame to support the tent or canopy. Such a frame usually comprises poles or rods. The erection of tents which use such frames could be difficult and although flexible rods make the erection of smaller tents, notably dome shaped tents, easier, these rods must still be installed. The use of poles or rods very often confuses the user or hamper the folding and storage of such tents and canopies.

It is an object of this invention to provide an inflatable frame suitable for supporting a tent or canopy which frame would facilitate their erection, breaking up, storage and transport when not in use. It is a further object of the invention to provide a tent, more specifically a dome shaped tent, which incorporates such an inflatable frame.

According to this invention there is provided an inflatable frame comprising at least three tube shaped legs made from a suitable resilient material, the upper ends of the legs being attached to one another, each leg constituting a separately sealed chamber provided with a valve, said chamber capable of being inflated with air and/or gas by means of said valve.

According to another feature of the invention there is provided an inflatable frame comprising/...

comprising at least three tube shaped legs made from a suitable resilient material, the upper ends of the legs being joined to form a single continuous chamber provided with a valve, said chamber capable of being inflated with air and/or gas by means of said valve.

According to yet a further feature in the invention the legs of the frame are made from reinforced PVC sheet material.

According to a further feature each leg, once inflated, assumes the form of a semi arch and the diameter of each leg at its upper end is smaller than the diameter of the leg at its base.

According to yet a further feature each leg along its entire length is provided with an inner longitudinally extending wall defining a chamber on either side thereof, each chamber being provided with a valve by means of which that particular chamber can be inflated.

According to another feature of the invention each leg along its entire length is provided with an inner longitudinally extending wall defining a chamber on either side thereof, one chamber in each leg being interconnected to the corresponding chamber in each of the other legs, said interconnected chambers forming a set of chambers provided with a common valve by means of which that particular set of chambers can be inflated.

According/...

According to yet a further feature the inflatable frame is suitable for supporting a suitable cover material to form a tent or a canopy.

A further feature of the invention provides for the means for removably attaching the cover material to the frame such means comprising an arrangement of hooks and eyelets, an arrangement of zips, VELCRO strips, etc.

According to yet a further feature the cover material is attached to the inward facing surface of the legs of the frame.

A further feature provides for the cover material to be permanently attached to the frame.

A further feature provides for an additional cover material which fits over the outside of the frame to provide additional thermal and moisture protection.

According to a further feature the additional cover material is permanently attached to the frame.

A further feature of the invention provides for an integral ground sheet to be incorporated with the frame.

A/...

A further feature provides for an inflatable mattress.

A further feature provides for the frame to be dome shaped.

This invention will now be described in more detail with reference to the accompanying drawings in which:

- Figure 1 shows an inflatable dome shaped frame suitable for supporting a cover material to form a canopy or tent-like structure, and
- Figure 2 shows a dome shaped tent incorporating the inflatable frame according to this invention.

Figure 1 illustrates one embodiment of an inflatable frame 1 comprising four substantially vertically disposed tube shaped legs 2. These legs 2 are made from a suitable resilient material such as, for example, reinforced PVC sheet material and are capable of being inflated. Each leg 2, once inflated, assumes the form of a semi arch. The diameter of each leg 2 at its upper end is smaller than the diameter of the leg 2 at its base. The upper ends of the legs 2 are suitably joined at the apex 3 resulting in the legs 2 forming a single continuous chamber. This arrangement allows all the legs 2 of the frame 1 to be inflated simultaneously by means of a single valve 4. Once inflated the frame 1 is dome shaped as shown in Figure 1.

In/...

In a preferred embodiment each leg 2 along its entire length is provided with an inner longitudinally extending wall defining a chamber on either side thereof. One chamber in each leg 2 is interconnected to the corresponding chamber in each of the other legs 2, said interconnected chambers forming a set of chambers capable of being inflated by means of a common valve 4. Should one set of chambers develop a leak the pressure in the remaining set of chambers will still provide each leg 2 with sufficient rigidity to prevent the frame 1 from collapsing.

The legs 2 may be provided with means for removably attaching a suitable cover material to form a tent or canopy. Such means (not shown) may include hooks and eyelets, VELCRO strips, zips or the like. The cover material may extend right down to the base of the legs 2 in the manner of a tent or may extend only partially down the legs 2 to form a canopy. A number of configurations is possible. Each leg 2 may be provided with an eyelet suitable for anchoring the leg by way of a tent peg to the surface onto which the frame 1 is to be erected. A ground sheet (not shown) may be permanently bonded or welded to the base of the legs 2.

Figure 2 illustrates an integrated frame and tent structure. In this embodiment a suitable cover material 5 is permanently bonded or welded to the inward facing surface of each leg 2. In the embodiment shown the cover material 5 extends right down to the base of the legs 2 in the manner of a tent and is provided with windows 6 and a door opening 7. A ground sheet (not shown) is provided as an integral part of the tent. The ground sheet may/...

may also incorporate an inflatable mattress (not shown).

In use the frame 1 is inflated by means of the valve 4 until the desired rigidity is achieved. The frame 1 is inflated by means of an air pump or any other suitable means such as a compressed air or gas cylinder, by means of the exhaust pipe of a vehicle, by using the air in the spare tyre of a vehicle, etc. As the pressure within the legs 2 rises the frame 1 will assume its predetermined shape. Once the required pressure is achieved the frame 1 will be semi rigid and capable of supporting a load such as the cover material 5. If the material 5 is not integrally attached to the frame 1 it may now be attached thereto by means of the hooks and eyelets, VELCRO strips, zips or the like referred to above.

In the event that the cover material is permanently attached to the frame 1 the entire tent structure is erected by simply inflating the frame 1 after which the tent is immediately ready for use. Where an integrated inflatable mattress is incorporated into the design the mattress may then also be inflated. A second layer of cover material may advantageously be permanently attached to the outer facing surfaces of the legs 2. Such second layer of material will enhance the water repellant and insulation capabilities of the tent or canopy and will automatically be in place once the frame has been inflated. In most instances the entire structure would be light enough to pick up and place in the required position after it had been inflated. If required the tent may be anchored to the surface on which it is erected by means of tent pegs hooked to the eyelets provided on the legs 2.

It/...

It is possible that the shape and format of the inflatable frame 1 described and illustrated above may vary without departing from the spirit and scope of the claims. For example, while recognising that the frame requires at least three legs to support itself, any number of extra legs may be utilised. In addition, more than one frame could be used to obtain various structures and the covering material may have a suitable configuration to provide for such variations in structure. In stead of providing only one valve by means of which the entire structure is inflated, the legs 2 or the chambers within the legs may each form an air tight unit, each chamber being provided with its own valve by means of which the chamber is inflated thereby providing even greater protection against leaks albeit at the expense of the convenience of inflating the structure in one operation. If found to be advantageous, a junction box (not shown) may be employed for the purpose of joining the legs 2 and their chambers at their apex 3. Horizontal connecting tubes may be provided between the bases of the legs to provide additional rigidity to the frame. By providing a suitable pressure regulator a compressed air or gas cylinder could remain attached to each valve 4 during use of the structure. This arrangement would ensure that a constant pressure within the frame 1 is maintained by automatically compensating for any possible leakage of air or gas which may occur. Depending on circumstances it may also be advantageous to fill or partially fill the frame with another medium such as water to add greater stability in the event of adverse weather conditions.

This invention therefore provides an inflatable frame suitable for supporting a tent or canopy which frame would facilitate its erection, breaking up, storage and transport when not/...

not in use. The invention also provides for a tent which incorporates such an inflatable frame and for a such a tent to be dome shaped.

CLAIMS/...

CLAIMS

1. An inflatable frame comprising at least three tube shaped legs made from a suitable resilient material, the upper ends of the legs being attached to one another, each leg constituting a separately sealed chamber provided with a valve, said chamber capable of being inflated with air and/or gas by means of said valve.
2. An inflatable frame comprising at least three tube shaped legs made from a suitable resilient material, the upper ends of the legs being joined to form a single continuous chamber provided with a valve, said chamber capable of being inflated with air and/or gas by means of said valve.
3. An inflatable frame as claimed in claim 1 or claim 2 wherein the legs are made from reinforced PVC sheet material.
4. An inflatable frame as claimed in any of the preceding claims wherein each leg, once inflated, assumes the form of a semi arch.
5. An inflatable frame as claimed in any of the preceding claims wherein the diameter of each leg at its upper end is smaller than the diameter of the leg at its base.
- 6./...

6. An inflatable frame as claimed in claim 1 or any of claims 3 to 5 wherein each leg along its entire length is provided with an inner longitudinally extending wall defining a chamber on either side thereof and wherein each chamber is provided with a valve by means of which that particular chamber can be inflated.
7. An inflatable frame as claimed in any of claims 2 to 5 wherein each leg along its entire length is provided with an inner longitudinally extending wall defining a chamber on either side thereof and wherein one chamber in each leg is interconnected to the corresponding chamber in each of the other legs, said interconnected chambers forming a set of chambers provided with a common valve by means of which that particular set of chambers can be inflated.
8. An inflatable frame as claimed in any of the preceding claims adapted to be inflated by means of a suitable air pump.
9. An inflatable frame as claimed in any of the preceding claims adapted to be inflated by means of the exhaust outlet of a vehicle.
10. An inflatable frame as claimed in any of the preceding claims adapted to be inflated by means of the spare wheel of a vehicle.

11./...

11. An inflatable frame as claimed in any of the preceding claims adapted to be inflated by means of a compressed air or gas cylinder.
12. An inflatable frame as claimed in claim 11 wherein there is provided a pressure regulator adapted to allow the air or gas cylinder to remain connected to the valve of a chamber over a period of time in order to maintain a constant predetermined pressure within the chamber.
13. An inflatable frame as claimed in any of the preceding claims including means for securing the frame to the surface upon which it is erected.
14. An inflatable frame as claimed in claim 13 wherein the means for securing/... securing the frame comprises eyelets suitable for securing the frame to tent pegs.
15. An inflatable frame as claimed in any of the preceding claims wherein the inflated frame forms a dome shaped structure.
16. An inflatable frame as claimed in any of the preceding claims suitable for supporting a suitable cover material to form a tent or a canopy.
- 17./...

17. An inflatable frame as claimed in claim 16 including means for removably attaching the cover material to the frame.
18. An inflatable frame as claimed in claim 17 wherein the means for removably attaching the cover material to the frame comprises an arrangement of hooks and eyelets.
19. An inflatable frame as claimed in claim 17 wherein the means for removably attaching the cover material to the frame comprises an arrangement of zips.
20. An inflatable frame as claimed in claim 17 wherein the means for removably attaching the cover material to the frame comprises VELCRO strips.
21. An inflatable frame as claimed in any of claims 16 to 20 wherein the cover material is attached to the inward facing surface of the legs of the frame.
22. An inflatable frame as claimed in claim 16 or claim 21 wherein the cover material is permanently attached to the frame.
23. An inflatable frame as claimed in any of claims 16 to 22 wherein there is provided an additional/...

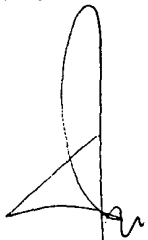
additional cover material which fits over the outside of the frame, adapted to provide additional thermal and moisture protection.

24. An inflatable frame as claimed in claim 23 wherein the additional cover material is permanently attached to the frame.
25. An inflatable frame as claimed in any of the preceding claims incorporating an integral ground sheet.
26. An inflatable frame as claimed in any of the preceding claims incorporating an inflatable mattress.
27. An inflatable frame as claimed in any of the preceding claims wherein the frame is dome shaped.
28. An inflatable frame substantially as hereinbefore described with reference to the accompanying drawings.
29. An inflatable frame substantially as hereinbefore described and illustrated in the accompanying drawings.

30./...

30. A tent having a frame as claimed in any of the preceding claims.
31. A tent substantially as hereinbefore described with reference to the accompanying drawings.
32. A tent substantially as hereinbefore described and illustrated in the accompanying drawings.
33. A dome shaped tent substantially as hereinbefore described with reference to the accompanying drawings.
34. A dome shaped tent substantially as hereinbefore described and illustrated in the accompanying drawings.

Dated this 24th day of June 1997

A handwritten signature in ink, appearing to be 'A J Scholtz', written over a vertical line.

A J SCHOLTZ

Patent Agent for the Applicant

FIG 1

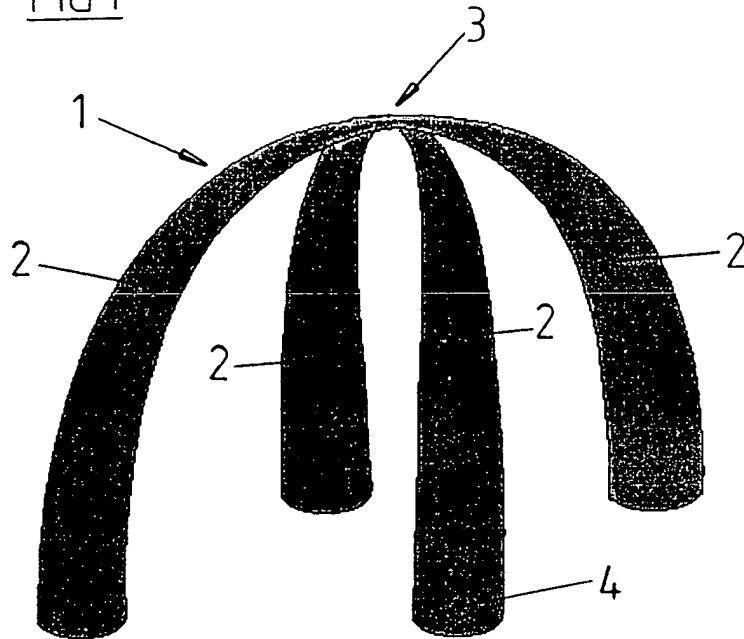
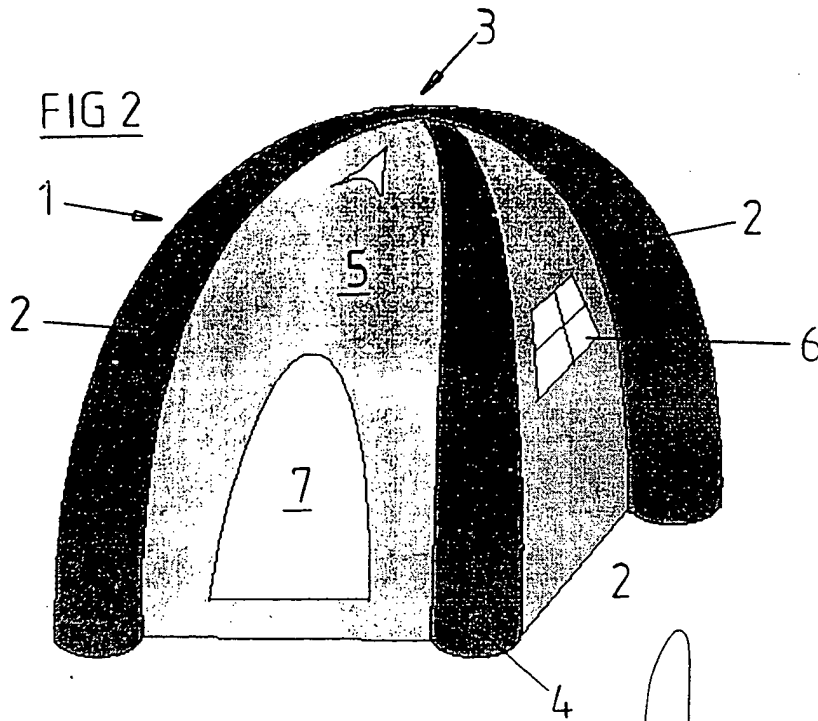


FIG 2



A J SCHOLTZ
PATENT AGENT FOR THE APPLICANT